

## ABSTRACT:

An optical signal processor comprises a first input terminal for a pulse signal light with a signal wavelength, a second input terminal for a probe light with a probe wavelength  
5 different from the signal wavelength, a first splitter to split the probe light into two portions, an XPM optical device, ~~to~~ T.T.  
~~which one portion of the split output lights from the first splitter and the pulse signal light enter,~~  
10 ~~to modulate the one portion of the split output lights from the splitter according~~ T.T.  
~~to amplitude variation of the pulse signal light,~~ a second splitter to split the light with the probe wavelength phase-modulated by the XPM optical device into two portions,  
a first combiner to combine the other portion of the ~~split~~ Split  
15 the split output lights from the first splitter with the one portion of the split output lights from the second splitter ~~in in phase~~ T.T.  
~~relation during a period corresponding to a non-pulse period of the pulse signal light,~~ and a second combiner to combine the other portion of the split output lights from the second  
20 ~~splitter with the output light from the first combiner in~~  
~~in phase relation during a period corresponding to a pulse period of the pulse signal light.~~